

	Microbe	R/T	Feature	Pathogenesis	Diseases	Diagnosis	Treatment & Prevention
Staphylococcus	Staph. aureus	R:NF nose T:Sneezing Food/ Wound	<ul style="list-style-type: none"> Cocci (+) Catalase(+)Coagulase (+) B-Hemolytic - Mannitol salt agar 	<ul style="list-style-type: none"> Ptn. A – TSST-1 - Enterotoxin - Exoflatins 	<ul style="list-style-type: none"> Localized Suppurative; Abscess, Impetigo, Endocarditis , BG Pneumonia - Gastroenteritis –Osteomyelitis#MCC Toxins; TSS – SSS (Salmon- colored sputum) 	<ul style="list-style-type: none"> ✓ Clinical ; S/S ✓ Lab; <ul style="list-style-type: none"> ☒ Sample; smear, swab, blood...etc ☒ Direct <ul style="list-style-type: none"> - Direct film stained .. showed... "SSSMAC" - Culture; require(O₂,CO₂,PH°C) + media & colony - BR; enzymes + fermentation + ABX sensitivity ☒ Indirect ; Serology + PCR 	<ul style="list-style-type: none"> PCN MRSA : Vanco VRSA: Linezolid
	<i>Staph.epi</i>	R:skin T:Endogen	<ul style="list-style-type: none"> Cocci (+) Catalase (+)Coagulase (-) Novobiocin (S) 		<ul style="list-style-type: none"> Infection of catheter : Endocarditis (acute) 		<ul style="list-style-type: none"> PCN
	<i>Staph.sapro.</i>	T:Endogen	<ul style="list-style-type: none"> Cocci (+) Catalase (+)Coagulase (-) Novobiocin (R) 		<ul style="list-style-type: none"> UTI in newly sexually active females "<i>Honeymoon cystitis</i>" 		<ul style="list-style-type: none"> PCN
Streptococcus	Strep.pyogen (Group A)	R:NF throat T:Respiratory droplets	<ul style="list-style-type: none"> Cocci (+) Catalase (-) Coagulase(-) Bacitracin (S) PYR+ B-Hemolytic 	<ul style="list-style-type: none"> M ptn. , Hyaluronidase , Streptokinase , Streptolysin ,Erythrogenic T, Exotoxin A-C 	<ul style="list-style-type: none"> Non Localized Suppurative; Cellulitis- Impetigo- F Tonsillitis Toxins; Scarlet fever Post infection ; AGN – Rheumatic fever 	<ul style="list-style-type: none"> Rapid strep test (ELISA based) ASOT > 200 significant for RA ↑CRP & ESR 	<ul style="list-style-type: none"> PCN / Macrolides (t) PCN / Macrolides (P)
	Strep.agalact. (Group B)	R:NF vagina T: during child birth	<ul style="list-style-type: none"> Cocci (+) Catalase (-) Coagulase (-) Bacitracin (R) CAMP+ B-Hemolytic 	<ul style="list-style-type: none"> Capsule – CAMP factor 	<ul style="list-style-type: none"> Neonatal meningitis and septicemia (MCC) 		<ul style="list-style-type: none"> PCN + Amino/Cephlo (t) PCN or Macro (P)
	Strep.pneumo	R:NF Upper Resp. tract T:Respiratory droplets	<ul style="list-style-type: none"> Diplo Cocci(+)Catalase(-)Coagulase(-) Optochin(S)α-Hemolytic-Bile lysed 	<ul style="list-style-type: none"> Capsule – IgA protease – Pneumolysin O 	<ul style="list-style-type: none"> <u>Lobar Pneumonia</u> (blood-tinged sputum) <u>Adult meningitis</u> (MCC) <u>Children otitis media & sinusitis</u> (MCC) 	<ul style="list-style-type: none"> Gram stain of CSF PCR of CSF Quellung reaction; +ve: capsular swelling with antiserum Latex agglutination; detect capsular antigen on CSF 	<ul style="list-style-type: none"> <u>Macrolides</u> Vaccine:PCV PPV <u>3rd Cephalo</u> <u>PCN</u> or Macro
	<i>Strep.viridans (sanguis,mutans)</i>	R:NF oro-pharynx T:Endogenous	<ul style="list-style-type: none"> Cocci (+) Catalase (-)Coagulase (-) Optochin (R) α-Hemolytic-Bile (R) 	<ul style="list-style-type: none"> Dextran (Biofilm) 	<ul style="list-style-type: none"> Dental caries – Endocarditis (acute) 		<ul style="list-style-type: none"> T; PCN + Amino P; PCN G
	<i>Strep.fecalis "Enterococcus"</i>	R:NF colon, Urethra T:Endogenous	<ul style="list-style-type: none"> Cocci (+) Catalase (-) Coagulase (-) Esculin agar PYR+ non Hemolytic 	<ul style="list-style-type: none"> Bile tolerant GI surgery \implies blood 	<ul style="list-style-type: none"> UTI & biliary tract infection Endocarditis (subacute) 	<ul style="list-style-type: none"> Culture for blood agar Serological; ABX sensitivity 	<ul style="list-style-type: none"> Ampicillin/Gentamycin/Streptomycin(t) "Some types has a powerful resistance" Penicillin and Gentamycin (P)
	Mycobact. tuberculosis	R: Lung T:Respiratory droplets	<ul style="list-style-type: none"> Acid Fast Rods, FIC , mycolic acid, UV (S), Catalase (+) heat (S) Niacin Lowenstein-Jensen (3-6 weeks) 	<ul style="list-style-type: none"> FIC Sulfatides; ↓phagosome - lysosome fusion Tuberculin; CMI granuloma & cessation Cord F; ↓ leukocyte migration 	<ul style="list-style-type: none"> Primary TB; IC replication & CMI (Ghon focus) → LN transport (Ghon complex) → wall off "Latent" Reactivational TB; on immuncomp. → miliary TB 	<ul style="list-style-type: none"> Auramine-rhodamine (florescent apple green) sensitive not specific PPD (mantoux test) Acid fast staining; sputum Culture; Lowenstein-Jensen, aerobic growth (3-6 w) 	<ul style="list-style-type: none"> First 2 months; RIPES rifampin + isoniazid + prrizinamide + ethambutol+ streptomycin Next 4 months; rifampin + isoniazid (P); isoniazid for 9 months for no s/s patient BCG vaccine
Mycobacterium	Aypical(MOI)	<i>M.avium</i>	T, Rep. Ingestion	<ul style="list-style-type: none"> On AIDS immuncomp., Cancer 	<ul style="list-style-type: none"> Pulmonary & GI granulomas, disseminated diseases 		<ul style="list-style-type: none"> Macrolides + ethambutol
		<i>M.kansaii</i>					
		<i>M.Scrofulaceum</i>	T; water				
		<i>M.marinum</i>	T; abrasions				
Bacillus	<i>Mycobact . leprae</i>	R:skin, mm, nerves T:nsal discharge	<ul style="list-style-type: none"> Acid Fast Rods, Obligate IC grows on cooler body temperature 	<ul style="list-style-type: none"> Obligate IC, cooler parts of the body; skin, MM, nerves 	<ul style="list-style-type: none"> Tuberculoid leprosy;strong CMI, granuloma, nerve damage, fewer lesions Lepromatous leprosy; weak CMI, massive lesions, sensory loss on extremities, loss of eyebrows, destruction of nasal septum, leonine facies 	<ul style="list-style-type: none"> Lepromin skin test; +ve Tuberculoid not lepromatous Acid fast staining; nasal scraping No culture 	<ul style="list-style-type: none"> T; Dapsone + rifampin + clofazimine P; dapsone for lose family contacts
	Bacillus. anthracis	R:soils/ Zoo T:contact/ inhalation	<ul style="list-style-type: none"> Rods (+) Spore (+) Aerobic Bio-warfare agent, Zoonotic 	<ul style="list-style-type: none"> Spores, capsule (poly), 3 anthrax toxin; protective, lethal,edema F 	<ul style="list-style-type: none"> Cutaneous anthrax "Mlignant pustules, eschar", Pulmonary anthrax (woolsorters)"FAHM DC", GI anthrax "NVDA" 	<ul style="list-style-type: none"> Gram stain + culture of; blood, resp drops, lesions Serology PCR 	<ul style="list-style-type: none"> T; Tetra/ Fluoroquinolone P; Toxoid "AVA"
	<i>Bacillus.cereus</i>	R: Nature T: Foodborne	<ul style="list-style-type: none"> Rods (+) Spore (+) Aerobic 	<ul style="list-style-type: none"> Emetic toxins + Diarrheal toxins 	<ul style="list-style-type: none"> Gastroenteritis; vomiting + watery diarrhea "self-limiting" 	<ul style="list-style-type: none"> Clinical s/s Gram stain + culture of implicated food 	<ul style="list-style-type: none"> Self-limiting
Clostridium	Clostridium tetani	R: Soil T: Puncture wounds	<ul style="list-style-type: none"> Rods (+) Spore (+) Anaerobic Tetanus toxin "Very potent" 	<ul style="list-style-type: none"> Spore -> tetanoplasmin -> CNS -> ↓ GABA, glycine 	<ul style="list-style-type: none"> Tetanus; Lock Jaw, Risus sardonicus, severe muscle spasm "Spastic paralysis" 	<ul style="list-style-type: none"> Clinical s/s ; organism is rarely isolated 	<ul style="list-style-type: none"> T; Antitoxin; TIG + ABX; Metro/PCN + Spasmolytic; Diazepam P; Toxoid "DTP"
	Clostridium botulinum	R: Soil/dust T: Foodborne wounds	<ul style="list-style-type: none"> Rods (+) Spore (+) Anaerobic Botulinum toxin (A-B neurotoxin) 	<ul style="list-style-type: none"> Spore -> Botulinum "H.Labile" -> NMJ -> ↓ A.choline 	<ul style="list-style-type: none"> <u>Adult toxicosis</u>; flaccid+ Blurred vision+ NVDA <u>Infant toxi-infection</u>; flaccid+diplopia+constip. 	<ul style="list-style-type: none"> Clinical s/s 	<ul style="list-style-type: none"> Antitoxin; Trivalent ABE + Resp.support Resp. support + hyperimmune serum & ABX is forbidden "<i>Infant</i>"
	Clostridium perfringens	R:Soil/colon T: Foodborne wounds	<ul style="list-style-type: none"> Rods(+)Spore(+) Anaerobic "Stormy" Double zone hemolysis 	<ul style="list-style-type: none"> Spore -> alpha toxins(lecithinase) -> massive hemolysis & hepatic toxicity B-toxin; necrosis Enterotoxin; food poisoning 	<ul style="list-style-type: none"> <u>Gas gangrene</u>"Myonecrosis"; tissue edema, gas, exudate <u>Food Poisoning</u>; on re-heated meat -> Enterotoxins -> watery diarrhea "self-limiting" 	<ul style="list-style-type: none"> Clinical s/s Culture; Nagler agar , a lecithinase test "alpha toxin" 	<ul style="list-style-type: none"> T; PCN & Clindamycin P; Debridement, hyperbaric chamber
	<i>Clostridium difficile</i>	R:colon/GIT T:Endogenous	<ul style="list-style-type: none"> Rods (+) Spore (+) Anaerobic 	<ul style="list-style-type: none"> Toxin A : mucosal damaging Toxin B : cytotoxin 	<ul style="list-style-type: none"> ABX (cephalo , clinda, amoxi/ CCA)-associated diarrhea, colitis, pseudomembranous colitis 	<ul style="list-style-type: none"> Culture isn't diagnostic as it's a NF Stool exam for toxin production 	<ul style="list-style-type: none"> Metronidazole if not; Vancomycin (t) # overprescribe broad-spectrum ABX
	Corynebact. Diphtheria	R: NF throat T: resp. dropl.	<ul style="list-style-type: none"> Rods (+) club-shaped " V, L " 	<ul style="list-style-type: none"> Not invasive, pseudo-membrane , diphtheria toxin (↓eEF-2) 	<ul style="list-style-type: none"> Diphtheria; Bull neck, recurrent laryngeal nerve palsy,pseudo-membrane, myocarditis. + breathe obstruction 	<ul style="list-style-type: none"> Elek test to detect toxin production; +ve : toxin diffuse away, antitoxin follow, Precipitin lines radically 	<ul style="list-style-type: none"> Antitoxin (20000-100000 IU)+ ABX; PCN/Metro Vaccine; DTP
Northeria	<i>Listeria monocytogenes</i>	R:Zoo/Milk T: Foodborne	<ul style="list-style-type: none"> Rods (+) Motile, CAMP+ FIC Cold growth 25°C 	<ul style="list-style-type: none"> FIC F.intracellular, Motility "jets" , Listeriolysin O Can grow at cold 	<ul style="list-style-type: none"> Listeriosis "Septicemia + meningitis" in Immunocompromised+ Neonate Granulomatosis infantiseptica in fetus during pregnancy "early", late ↑ 	<ul style="list-style-type: none"> Culture of Blood or CSF "Cold enrichment" Gram stain or wet mount of CSF 	<ul style="list-style-type: none"> T;PCN + Amino P;Milk pasteur. + Avoid deli food for pregnant
	<i>Nocardia.asteroides</i> <i>Nocardia.brasilensis</i>	R: Soil/dust T: airborne /wounds	<ul style="list-style-type: none"> Br. filamentous Rods (+) partial Acid Fast 	<ul style="list-style-type: none"> Pulmonary infection to immuncomp. And cancer 	<ul style="list-style-type: none"> N.ast; mycetomas; bronchopulmonary D, brain abscesses" multiple" N.bra; mycetomas; cutaneous & SC cellulitis & draining abscess 	<ul style="list-style-type: none"> Culture of sputum or pus from lesion 	<ul style="list-style-type: none"> Sulfo or TMP-SMX
	<i>Actinomyces israeli</i>	R:Gingiva T:Endogenous	<ul style="list-style-type: none"> Branching Rods (+) Anaerobic 	<ul style="list-style-type: none"> Invasion of O₂ compromised tissue 	<ul style="list-style-type: none"> Actinomycosis; mycetomas; lumpy jaw, CNS abscess "solitary" 	<ul style="list-style-type: none"> Gram stain shows branches "sulfur granules" Culture; colonies resembles molar tooth 	<ul style="list-style-type: none"> PCN – 3rd Cephalo

Neisseria	Neisseria meningitidis	R: nasopharynx T: Resp. drops	<ul style="list-style-type: none">• Diplo Cocci(-) kidney-shaped, ferments maltose – oxidase (+)	<ul style="list-style-type: none">• Capsule"5 serogroups", Pili, IgA protease, endotoxin C5-C9 def. comp.	<ul style="list-style-type: none">• Meningitis & Meningococemia; FAHM, sore throat, Neck rigidity Fulminant cases; ecchymosis, DIC, shock, coma & death "Waterhouse synd"	<ul style="list-style-type: none">• Gram staining of CSF PCR• Quellung - Latex agglutination	<ul style="list-style-type: none">• T: PCN + 3rd Cephalo• P; ACYW135 vaccine Rifampicin/Fluoro							
	Neisseria gonorrhoeae	R: Genital tract T: sex, birth	<ul style="list-style-type: none">• Diplo Cocci(-) kidney-shaped, Cannot ferments maltose - oxidase (+)	<ul style="list-style-type: none">• Pili "Variants", OMP I , Opa ptn. , IgA protease , endotoxin	<ul style="list-style-type: none">• Gonorrhea; Male; urethritis, proctitis Female; endcervicitis, PID, proctits Infants; ophthalmelma MCC	<ul style="list-style-type: none">• Gram staining; urethral smear Genetic probes• Thayer-Martin medium	<ul style="list-style-type: none">• 3rd Cephalo• (P); Neonate erythromycin ointment							
	Moraxella catarrhalis	R: U Resp. tract T: resp. drops	<ul style="list-style-type: none">• Diplo Cocci(-) close relative to Neisseria	<ul style="list-style-type: none">• Endotoxin; may play role in disease	<ul style="list-style-type: none">• Otitis media & sinusitis• Bronchitis & bronchopneumonia in elderly patient with COPD			<ul style="list-style-type: none">• BS PCN; Piperacillin – Augmentin						
Pseudomonas	Pseudomonas aeruginosa	R: water T: water aerosol Raw veg. flower	<ul style="list-style-type: none">• Rods (-) oxidase (+) Catalase (+),aerobic Non-fermenter, blue-green pigments, fruity odor	<ul style="list-style-type: none">• Capsule, Motility, pseudomonas exotoxin(↓eEF-2) , endotoxin	<ul style="list-style-type: none">• Burn infections; eschar colony -> cellulitis "blue green pus" -> septicemia• Otitis externa; on swimmers and diabetics UTI; on catheterized patients• Typical pneumonia; on neutropenic patients & CGD Cystic fibrosis	<ul style="list-style-type: none">• Gram stain• Culture; blue-green pigment with fruity odor	<ul style="list-style-type: none">• PCN + Amino							
	Legionella pneumophila	R: water, AC T: aerosol, AC	<ul style="list-style-type: none">• Rods (-) poor stain, FIC, Fastidious to iron & cysteine Common on elderly smokers and drinkers	<ul style="list-style-type: none">• FIC, Motility, Endotoxin	<ul style="list-style-type: none">• Legonnaires disease; Triad: <u>Atypical pneumonia</u> + Diarrhea + Hyponatremia	<ul style="list-style-type: none">• DFA; +ve Dieterle silver stain Culture hazardous• BR; ABX sensitivity		<ul style="list-style-type: none">• Rifampicin + Fluoro/Macro						
Haemophilus	H.influenza	R: oropharynx T: Resp. droplet	<ul style="list-style-type: none">• Rods (-),Fastidious to Factors X & V (Hemin, NAD)• Chocolate agar or with S.aures " satellite"	<ul style="list-style-type: none">• Capsule (b) IgA proteases	<ul style="list-style-type: none">• <u>Children</u>: Meningitis, Otitis media2nd MCC after <i>pneumococci</i>, epiglottitis• Smokers with COPD; Bronchitis and Pneumonia	<ul style="list-style-type: none">• Chocolate agar• Quellung – Latex• DNA probe	<ul style="list-style-type: none">• T: 3rd Cephalo – Rifampicin(↓ colonz)• P: Capsule b vaccine							
	H.ducreyi	R: Gentia tract T: Sex			<ul style="list-style-type: none">• Chancroid ulcers; soft and painful (Unlike syphilis) "<i>you do cry with ducreyi</i>"• Open lesion are slow to heal and increase transmission of HIV			<ul style="list-style-type: none">• Macro - 3rd cephalo – Fluoro						
Bordetella	B. abortus ; cattle B. melitensis ; goats B. suis ; pigs	R: Zoo T: goat Milk or Direct contact	<ul style="list-style-type: none">• Rods (-) poor stain, FIC, Bio-warfare agent, Zoonotic	<ul style="list-style-type: none">• FIC in RES -> granulomatous response Endotoxin -> septicemia	<ul style="list-style-type: none">• Brucellosis (Undulant fever 102F°); Acute septicemia, FAHM + Profuse sweating "massive sweating"	<ul style="list-style-type: none">• Serology; DFA Culture hazardous• BR; ABX sensitivity (+ve 1:160)	<ul style="list-style-type: none">• Adults; Rifampicin + Tetra• Children; Rifampicin + TMP-SMX							
	Bordetella pertussis	R: vaccinated human T: resp drops	<ul style="list-style-type: none">• Rods (-) poor stain, aerobic , capsulated	<ul style="list-style-type: none">• Motile, Capsule, Filamentous hemagglutinin, Adenylate cyclase T; edema, ↓ phagocytosis Tracheal T; cytotoxic Pertussis T; ↓ cell signals -> ↓ chemotaxis & lymphocytosis	<ul style="list-style-type: none">• Whooping cough (Pertussis) with stages; <table><tr><th>Incubation;1st</th><th>Catarrhal; 1-2week</th><th>Paroxysmal; 2-4 w</th><th>Convalescent; 3-4 week</th></tr><tr><td>No S/S</td><td>Cold like S/S,Culture high</td><td>Repetitive cough</td><td>+ 2ndry complication; pneumonia</td></tr></table>	Incubation;1 st	Catarrhal; 1-2week	Paroxysmal; 2-4 w	Convalescent; 3-4 week	No S/S	Cold like S/S,Culture high	Repetitive cough	+ 2 nd ry complication; pneumonia	<ul style="list-style-type: none">• Culture; Bordet-Gangou – Cough plate method• Serology; DFA
Incubation;1 st	Catarrhal; 1-2week	Paroxysmal; 2-4 w	Convalescent; 3-4 week											
No S/S	Cold like S/S,Culture high	Repetitive cough	+ 2 nd ry complication; pneumonia											
Campylobacter	Campylobacter jejuni	R: intestine of man,pet,poultry T: fecal-oral	<ul style="list-style-type: none">• Curved Rods (-) oxidase (+) polar flagella, microaerophilic, grows at 42° C – Micro aerobic	<ul style="list-style-type: none">• Motility ,HCL resistant + mucosal invasive "<i>requires low dose< 500 organism</i>"	<ul style="list-style-type: none">• Gastroenteritis; NVDA; 10 times/day bloody inflammatory diarrhea• GBS "Guillain-Barre syndrome"; acute inflammatory pyelonephritis	<ul style="list-style-type: none">• Gram stain; gull's wing Serology; Oxidase (+)• Culture; Campy medium or Skirrow agar 42° C	<ul style="list-style-type: none">• Supportive; fluid & electrolyte replacement• immunocomp; Fluoroquinolone or erythro							
	Helicobacter pylori	R: Humans T: Fecal-oral Oral-oral	<ul style="list-style-type: none">• Helical Rods (-) urease (+) oxidase (+) polar flagella, , grows at 37° C – Micro aerobic	<ul style="list-style-type: none">• Motile Urease (+)"HCL neutralize" Mucinase-> mucosal invasion vacuolating cytotoxin Adhesin	<ul style="list-style-type: none">• Chronic gastritis and duodenal ulcers;FNVDA; bloody diarrhea• Carcinogenic -> several forms of stomach cancer	<ul style="list-style-type: none">• Gram stain Culture of biopsy "same of campylobacter]"• Breath test; ¹³C-urea swallow; ammonia+ ¹³C-CO₂ exhale• BR; Urease (+) Histology: Giemsa or Silver	<ul style="list-style-type: none">• Triple; PPI + amoxi + clarithro• Quadruple; PPI + bismuth + metro + tetra							
Vibrio	Vibrio cholerae	R: Humans T: Fecal-oral Oral-oral	<ul style="list-style-type: none">• Curved Rods (-) oxidase (+) polar flagellum, alkaline growth	<ul style="list-style-type: none">• Motile Mucinase Pili TCP Cholera enero T; ↑ cAMP -> ↑ Cl⁻, H₂O efflux	<ul style="list-style-type: none">• Cholera; Rice watery noninflammatory diarrhea -> dehydration (reach20 liters) -> hypovolemic shock and death if not treated	<ul style="list-style-type: none">• Culture; stool on TCBS• BR; Oxidase (+)	<ul style="list-style-type: none">• T;Mild; supportive Severe; Tetra / Fluoro• P; Proper sanitation + new vaccine							
	V.parahemolyticus	R: marine life T: raw seafood	<ul style="list-style-type: none">• Curved Rods (-) oxidase (+) , alkaline growth		<ul style="list-style-type: none">• Gastroenteritis; noninflammatory diarrhea		<ul style="list-style-type: none">• Self-limiting; fluid & electrolyte replacement							
	V.vulnificus	R: brackish water T: raw seafood Swimming in brackish water	<ul style="list-style-type: none">• Curved Rods (-) oxidase (+) , alkaline growth		<ul style="list-style-type: none">• Gastroenteritis; noninflammatory diarrhea• Cellulitis; rapidly spreading "dangerous & may require amputation"		<ul style="list-style-type: none">• Self-limiting; fluid & electrolyte replacement• Tetra + cephalo							
Enterobacteriaceae	K.pneumoniae K.rhinoscleroma	R: colon/u resp T: Endogenous	<ul style="list-style-type: none">• Rods (-), Fucultat. anaerobic lactose fermenter "KE"	<ul style="list-style-type: none">• Capsule Endotoxin	<ul style="list-style-type: none">• Typical pneumonia; currant jelly sputum UTI; nosocomial• Septicemia; on immunocompromised Rhinoscleroma	<ul style="list-style-type: none">• Culture of sputum or clean catch urine ; EMB; lactose fermenter• Oxidase (-)	<ul style="list-style-type: none">• T; 3rd Cephalo ± amino ± fluoro• P; Proper catheter care							
	Eschericia coli	T; Endogenous T; mother fecal T; Indwelling IV T: Fecal-oral	<ul style="list-style-type: none">• Rods (-),lactose fermenter "KE" on EMB agar B-hemolytic "Blood agar", Fucultat. anaerobic• R; human colon, bovine feces	<ul style="list-style-type: none">• Motility Adhesin to uroepith• Capsule Endotoxin• Endotoxin• Gastroenteritis; - EPEC: Adhesin to M cells -> effacement - EIEC : mucosal invasion - ETEC: LT; ↑ cAMP ST; ↑ cGMP - EHEC: Verotoxin; ↓ ptn synthesis "60s ribo"	<ul style="list-style-type: none">• UTI; ascending infection• Neonatal meningitis and septicemia (2nd MCC after <i>S.agalactia</i>)• Septicemia• Gastroenteritis; "PITcH" - EPEC; Pediatric noninflammatory diarrhea - EIEC; Inflammatory bloody diarrhea "Shigella like" - ETEC; Traveller's noninflammatory diarrhea - EHEC; Hemorrhagic noninflammatory diarrhea may->hge colitis and HUS childer	<ul style="list-style-type: none">• Gram stain , Oxidase (-)• Gram stain blood, CSF culture• Gram stain blood culture Oxidase (-)• Culture; stool IMacconkey sorbitol	<ul style="list-style-type: none">• Fluoro or sulfo• 3rd Cephalo• Fluoro + cephalo• Gastroenteritis; - EPEC; B-lactam - EIEC - ETEC; Rehydration + TMP-SMX - EHEC;ABX are contra as may -> HUS							
	Shigilla dysentarai Sonnei	R: colon/u resp T: Fecal-oral	<ul style="list-style-type: none">• Rods (-), non-lactose fermenter "ShYPS" , non-motile, facultative anaerobic	<ul style="list-style-type: none">• Mucosal invasive Actin jets Endotoxin Shiga T; neuro, cyto, entero T "<i>requires low dose 1-10 organisms</i>"	<ul style="list-style-type: none">• Shigellosis; Enterocolitis; inflammatory diarrhea: watery then bloody "Rapid onset 1-4 days" Bacillary dysentery• Septicemia; shallow ulcers -> blood, fever & lower abdominal cramps	<ul style="list-style-type: none">• Gram stain Culture of stool; DCA "yellow colony"• BR; catalase positive - non lactose fermenter• Serology PCR	<ul style="list-style-type: none">• T; Mild; supportive Severe; Tetra/ Fluoro• P; Proper sanitation							
	Yersinia pestis	R: Zoo T: flea, resp drop	<ul style="list-style-type: none">• Rods (-), non-lactose fermenter "ShYPS" , non-motile, facultative anaerobic	<ul style="list-style-type: none">• Envelope F-1 antigen type III secretion Coagulase Endotoxin	<ul style="list-style-type: none">• Bubonic plague "flea bite";rapid onset fever, regional buboes, conjunctives• Pneumonic plague "inhalation" in both septicemia -> death	<ul style="list-style-type: none">• Serology; DFA Culture hazardous• Bipolar "safety pin" staining	<ul style="list-style-type: none">• T; Amino• P; Animal& flea control Vaccination							
	Yersinia enterocolitica	R: Zoo T: Milk,Ice,pork	<ul style="list-style-type: none">• Rods (-), non-lactose fermenter "ShYPS" , non-motile, facultative anaerobic ,Cold growth	<ul style="list-style-type: none">• Enterotoxin Endotoxin can growth in cold	<ul style="list-style-type: none">• Young; febrile diarrhea (blood & pus) bl. tranf. associated infection• Older; pseudoappendicitis, enterocolitis + post sequela -> arthritis	<ul style="list-style-type: none">• Culture of stool "Cold enrichment"• BR; non-lactose fermenter	<ul style="list-style-type: none">• T;Mild; supportive Severe; fluoro / cephlo• P; Milk pasteurization							
	Proteus mirabilis P.vulgaris	R: colon/soil T: Endogenous	<ul style="list-style-type: none">• Rods (-), non-lactose fermenter "ShYPS" , motile, urease (+)facultative anaerobic	<ul style="list-style-type: none">• Motility Urease Endotoxin	<ul style="list-style-type: none">• UTI; high motile -> bladder -> kidney -> ↑ pH -> kidney stone "staghorn renal calculi"• Septicemia	<ul style="list-style-type: none">• Culture of blood or urine• BR; Urease (+) & non-lactose fermenter	<ul style="list-style-type: none">• T; Fluoro/TMP-SMX/cephalo stone remove• P; Proper catheter removal							
	Salmonella typhi	R: Humans T: Fecal-oral	<ul style="list-style-type: none">• Rods (-), non-lactose fermenter "ShYPS" , HIGHLY motile, H₂S (+) facultative anaerobic	<ul style="list-style-type: none">• Capsule Motility Invasion FIC Endotoxin	<ul style="list-style-type: none">• Typhiod fever; 1st W; at ileocecal region -> invade mucosa M cells -> LN -> Blood, liver, spleen -> septicemia, BTI 3rd W; stool + contsp & diarrhea S/S; blanching rash "rose spots", palpable splenomegaly	<ul style="list-style-type: none">• 1st W; Blood (+) 3rd W; Stool (+)• Widal test	<ul style="list-style-type: none">• T; 3rd cephalo + Fluoro/TMP-SMX/• P; Sanitation VICPS vaccine							
S.entriditis S.typhimurium	R: man/ Zoo T: Food/contact	<ul style="list-style-type: none">• Rods (-), non-lactose fermenter "ShYPS" , HIGHLY motile, H₂S (+) facultative anaerobic	<ul style="list-style-type: none">• Capsule Motility Invasion	<ul style="list-style-type: none">• Enterocolitis 2nd MCC after <i>C.bacter</i> Chicken food or contact Osteomyelitis in sickle cell disease MCC Septicemia; in age extremities	<ul style="list-style-type: none">• Widal test , OH Vi antigens• Hektoen agar (H₂S) - DCA	<ul style="list-style-type: none">• T; Gitis; self-limiting ABX# Ampi/Fluor / TMP-SMX /3rd cephalo• P; Proper hygiene proper cooking								

